

REMARKS

In view of the following remarks, reevaluation and further processing of the application is requested. Prior to amendment herewith, Claims 1-13 were pending in the application. By amendment herewith, Claims 1, 3, 6, 8, and 9 have been amended, Claims 4 and 5 have been cancelled, and new Claims 14-20 have been added. The Claims have been amended for clarity purposes only and not in relation to any of the cited art.

In the Office Action, the Examiner rejected Claims 1-13 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,668,350 to Desclaux et al. ("Desclaux") in combination with U.S. Patent No. 6,440,294 to Cotton ("Cotton") and U.S. Patent Publication No. 2002/0146057 to Barron, Jr. et al. ("Barron, Jr."). The Examiner states that Desclaux discloses a method for controlling the rate of aluminum fluoride addition to an aluminum electrolytic cell using the known ratio between temperature and bath ratio. The Examiner admits that Desclaux does not disclose crust hole repair or sensing the temperature of an electrolytic cell chamber using infrared. The Examiner further states that "the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though the prior art of Desclaux et al others does not disclose crust repair or the use of sensing infrared radiation using an infrared sensor, the prior art . . . shows that . . . the use of an infrared sensor for use with target materials such as aluminum to detect the temperature of the aluminum material remote from the material is known to the person having ordinary skill in the art." Applicant respectfully traverses this rejection.

Applicant submits that the Examiner has not established a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, three basic criteria must be met:

1. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;
2. There must be a reasonable expectation of success; and
3. The prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991). Applicant respectfully submits that, with respect to Independent Claim 1, at least two of the above-referenced criteria have not been established.

Independent Claim 1 recites, *inter alia*, sensing infrared radiation on the outer surface of a chamber with an infrared sensor to determine an actual temperature. None of Desclaux, Cotton or Barron, Jr., disclose this limitation. Desclaux discloses measuring cell temperature, but only "by means inserted in the side wall, or the floor, or in a cathode current collector in the cell floor". Desclaux, Col. 2, lines 10-16. As admitted by the Examiner, Desclaux does not disclose the use of an infrared sensor to sense infrared radiation on the outer surface of the reaction chamber. Neither Cotton nor Barron, Jr. disclose the use of an infrared sensor to measure infrared radiation on the outer surface of a chamber. Hence, Applicant respectfully submits that none of the cited art teaches the aforementioned claim limitation, and therefore Claim 1 is not obvious.

Moreover, even if the cited art taught every claim element of the invention, a *prima facie* case of obviousness cannot be established as one of ordinary skill in the art would not be motivated to combine the teachings of Desclaux with the teachings of Barron, Jr. to achieve the present invention. As noted in MPEP § 2143.01, even if the combination of the references teaches every claim element, without a motivation to combine the references, a rejection based on a *prima facie* case of obviousness is improper. See MPEP § 2143.01, citing Al-Site Corp. v. VSI Int'l Inc., 174 F.3d 1308 (Fed. Cir. 1999). A motivation to combine references to prove obviousness is required to prevent the forbidden *ex post* analysis of "decomposing an invention into its constituent elements, finding each element in the prior art, and then claiming that it is easy to reassemble these elements into the invention" In re Mahurkar Patent Litigation, 831 F. Supp. 1354, 28 USPQ2d 1801 (N.D. Ill. 1993), *aff'd*, 71 F.3d 1573, 37 USPQ2d 1138 (Fed. Cir. 1995). In order to prevent such hindsight-based obviousness analysis, the relevant inquiry is whether there is a reason, suggestion, or motivation in the prior art or elsewhere that would have led one of ordinary skill in the art to combine the references. See, In re Rouffet, 149 F.3d 1350, 1359, 47 U.S.P.Q.2D (BNA) 1453, 1459 (Fed. Cir. 1998).

Applicant respectfully submits that there is no reason, suggestion or motivation in the cited art that would lead one of ordinary skill in the art to combine Desclaux with Barron, Jr. to achieve the present invention. The Examiner appears to assert that because Barron, Jr. discloses measuring the temperature of a target, which may be a material such as glass, aluminum, silicon or a block, rod or wafer, using infrared, one of ordinary skill in the art would be motivated to combine the teachings of Desclaux with Barron, Jr. to achieve the present invention. However, simply because Barron, Jr. discloses an infrared sensor that may be utilized to measure various materials does not mean that one of ordinary skill in the art would be motivated to use such a sensor in a reactor environment. Indeed, nowhere does Barron, Jr. disclose that an infrared sensor could be used to measure the temperature of an electrolytic cell, or any other type of reactor, to provide temperature measurements that may be used to adjust the operating parameters of the electrolytic cell. Desclaux does not disclose infrared sensors. Thus, neither Desclaux nor Barron, Jr. provide the legally required suggestion or teaching that would lead one of ordinary skill in the art to combine those references. Hence, there is no motivation to combine Desclaux with Barron, Jr. and therefore a *prima facie* case of obviousness cannot be established with respect to Claim 1.

For many of the same reasons, Independent Claims 9 and 11 are also not obvious. Both of those claims require the sensing of infrared radiation on the outer surface of a chamber of an aluminum electrolytic cell. As noted above, a *prima facie* case of obviousness cannot be established with respect to this limitation. Hence, both Claims 9 and 11 are also patentable.

In light of the above amendments and remarks, it is believed that the present application is in condition for allowance, and such action is respectfully requested. If the Examiner believes that it would be helpful to discuss any of the amendments or remarks presented herein, the Examiner is invited to contact the undersigned at the telephone number provided.

As noted above, Applicant has added additional claims. Any necessary additional claim fees are calculated below.

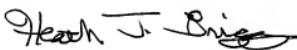
For	Claims Remaining After Amendment	Highest Number Previously Paid For		Extra Claims	Rate		Additional Fee
Total Claims	18	- 20	=	0	x \$50	=	\$0
Independent Claims	3	- 3	=	0	x \$200	=	\$0
Multiple Dep. Claim	0	- 0		\$360		=	\$0
Total Fee						=	\$0

Hence, it is not believed that any additional claim fees are due in connection with this response. However, any necessary fees may be charged to Deposit Account No. 50-2775.

Respectfully submitted,

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